ALL-IN-ONE CHIP

Under a Lewis Research Center Small Business Innovation Research (SBIR) contract, EMC Technology, Cherry Hill, New Jersey, established a family of temperature-compensating electronic attenuators. These devices reduce the impact of heat upon amplifier gain.

Special thermistor materials were developed by EMC Technology, thanks to the SBIR-funded work, devices that are particularly useful in certain types of low power amplifiers used in satellite applications. This novel approach to temperature compensation spurred the company's Thermopad™ temperature compensating attenuator product line.

Not only did the materials developed satisfy NASA requirements, the SBIR work has also proven useful on several new commercial fronts. Devices with greater temperature compensation and lower loss have been developed and used by companies such as Hughes Space and Communications, Motorola, Lucent, Ericcson, and General Instrument.

One added result stemming from the EMC Technology work has been a component that provides a temperature-compensated DC voltage that is proportional to the power dissipated in a radio frequency termination with a frequency range of 200 to 6000 Megahertz. Communication systems that require accurate, reliable, low cost power detection for level control and alarm circuits have benefited by this development.

This peerless set of products was enhanced by materials developed with the funding from an SBIR Phase II award, says Joseph Mazzochette, EMC Technology's Vice President of Engineering. "The performance improvements due to these materials is quite dramatic," he says. Moreover, as an added company dividend, those enhancements open the door to new applications.

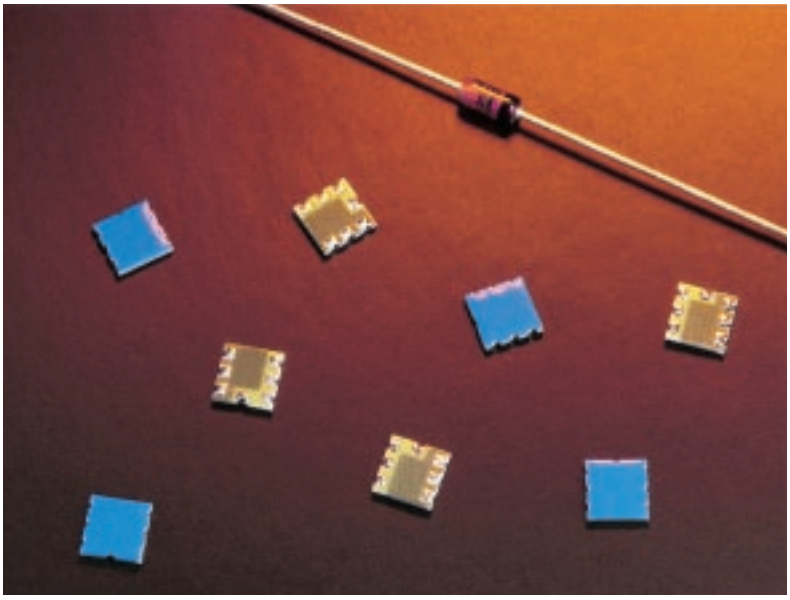
For over three decades, EMC Technology has been an industry leader with innovative, high quality microwave components. EMC Technology products are a mainstay in the wireless telecommunications industry, in particular. Knowing that the needs of the marketplace change quickly, the company is poised to respond to these changes with cost-effective new solutions.

The passive temperature compensating attenuator best examples this company strategy.

Now patented by EMC Technology, this component is an absorptive microwave attenuator, providing power dissipation that varies with temperature. The device can be used in any application that requires a known amount of attenuation change for a particular temperature shift. This is particularly useful for maintaining the output of gain stages, mixers, power dividers, and other signal processing components over temperature.

This electronic component is the ideal temperature compensation solution, claims EMC Technology, for cost, performance, and reliability. Presently used closed-loop temperature compensation circuits can be replaced with a single chip device requiring no bias or control. It excels in multiple signal applications such as cellular telephone networks. With low cost and no signal distortion, the attenuator provides high reliability for spacecraft applications. Available in a wide assortment of package styles, the compensating attenuator reduces component count, increases reliability, and saves the buyer money.

™Thermopad is a trademark of EMC Technology.



NASA-funded materials research helped in the fabrication of electronic attenuators that compensate for temperature changes in amplifiers, mixers, and oscillators.